Abstract of the Disclosure

MODIFIED SILANE COMPOUNDS

This invention relates to the reversible protection of hydroxy-silane functional groups by acid cleavable protecting groups. The development of reversible protecting groups greatly enhances the current utility of silanes while introducing further novel applications. For instance, reversibly protected silanes are of particular value in applications where room temperature cure and/or adhesion is of value, such as coatings, high resolution imaging, caulks, adhesives, sealents, gaskets, and silicones. Reversibly protected silanes can also be beneficially used in reticulating agents, and in sizing agents, tires, and release coatings. The incorporation of reversibly protected silanes into coating resins is of particular value. The reversibly protected silane can be incorporated into the coating resin by polymerizing a monomer containing the reversibly protected silane into the resin or by post-addition into the coating formulation. The reversibly protected silane remains protected under basic conditions, such as in a coating formulation that contains a volatile base, for instance ammonium hydroxide. However, deprotection occurs under mildly acidic conditions. Thus, as a coating formulation containing a volatile base dries the volatile base evaporates and deprotection occurs. This allows for controlled room temperature crosslinking to occur with hydroxy-functionalized polymers. The present invention more specifically discloses a silyl-acetal compound consisting of a silane having 3 or 4 acetal moieties bonded thereto.